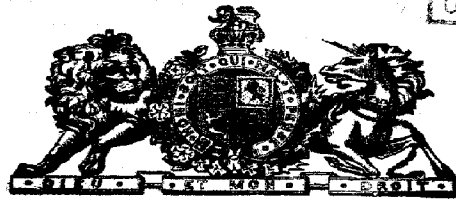


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WEATHER REPORT

[Nov.-Dec.]

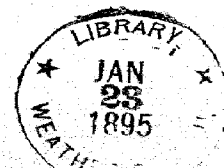
FOR THE MONTH OF

NOVEMBER, 1894.

KINGSTON:—METEOROLOGICAL RESULTS.

Elevation above Sea-level 50 feet.

Nov. 1894.	Pressure.		Temperature.					Dewpoint.		Humidity.		WIND.					Total miles of wind.
	7 a.m.	3 p.m.	7 a.m.	3 p.m.	Max.	Min.	Range.	7 a.m.	3 p.m.	7 a.m.	3 p.m.	Direction from, and miles per hour.					
												7 a.m.	3 p.m.	Means for the day.			
	In.	In.	°	°	°	°	°	°	°								
1	30.001	29.915	74.6	83.1	88.1	72.3	15.8	71.0	73.6	89	73	Z	0	SSE	12	118	
2	.011	.955	75.9	86.4	88.8	72.5	16.3	70.6	71.6	84	61	Z	0	S	3	79	
3	29.946	.928	73.8	86.0	88.5	71.8	16.7	68.7	74.3	85	68	N	2	SSE	9	86	
4	.993	.920	73.4	85.2	88.4	72.2	16.2	70.8	73.2	92	68	Z	0	S	4	87	
5	.994	.912	70.8	87.8	89.1	88.7	20.4	69.2	70.3	95	56	Z	0	S	5	65	
6	.959	.899	73.8	88.1	86.8	70.4	16.4	68.6	71.9	85	69	N	2	SW	4	66	
7	.965	.894	73.2	86.4	88.9	71.0	17.9	68.5	71.4	85	61	N	2	SW	4	65	
8	.975	.902	73.8	85.2	88.2	72.0	16.2	69.7	71.4	87	63	N	2	SSE	9	89	
9	.997	.981	75.2	84.8	88.5	72.4	16.1	71.8	72.7	89	67	Z	0	SE	9	84	
10	30.006	.921	73.7	85.1	89.1	72.4	16.7	70.1	74.9	83	72	Z	0	SSE	12	101	
11	29.981	.913	74.2	85.7	88.7	72.0	16.7	69.2	74.7	84	70	N	2	SE	9	86	
12	.989	.908	75.2	84.4	88.7	73.4	15.3	70.1	73.0	84	69	Z	0	N	4	68	
13	.961	.920	74.7	83.2	86.5	73.6	11.9	70.8	71.2	85	67	Z	0	SE	6	63	
14	.997	.951	73.9	85.7	87.0	71.0	16.0	68.2	72.6	82	69	Z	0	SE	3	46	
15	.994	.929	72.4	85.4	89.5	71.0	18.5	68.9	73.5	89	68	Z	0	SE	7	73	
16	30.001	.965	72.4	85.8	89.5	70.4	19.1	69.8	74.3	91	69	Z	0	SSE	10	104	
17	.084	.944	74.5	84.3	87.5	72.5	15.0	70.0	71.2	86	65	N	2	SE	10	100	
18	.081	.924	73.3	86.2	89.4	72.0	17.4	68.1	75.3	94	70	Z	0	SE	10	98	
19	.019	.926	72.9	87.8	90.3	70.0	20.0	66.8	71.7	81	59	Z	0	SE	3	68	
20	29.971	.952	74.3	74.9	88.0	71.6	16.4	68.4	74.0	82	97	N	2	NR	8	77	
21	30.045	.950	71.5	85.4	88.5	68.3	20.2	69.6	69.2	94	58	Z	0	SW	4	72	
22	.027	.938	71.9	86.0	89.1	70.5	18.5	68.8	70.7	90	60	N	3	SW	6	61	
23	29.992	.937	73.2	84.1	87.7	71.0	16.7	69.6	74.6	83	73	N	1	S	8	76	
24	.979	.899	73.4	86.3	88.2	71.6	16.6	69.2	71.6	86	62	N	4	SW	4	68	
25	.950	.867	71.4	86.6	86.8	69.2	17.6	69.5	71.9	94	62	N	1	SW	6	65	
26	.962	.913	73.2	77.6	85.0	70.3	14.2	69.2	73.5	89	87	N	2	Z	0	78	
27	30.003	.958	71.8	86.4	88.1	67.8	20.3	69.5	70.6	93	61	N	5	SE	2	49	
28	.096	.970	71.1	83.5	87.3	69.1	18.2	67.8	72.5	89	70	N	2	S	2	50	
29	.015	.960	71.2	82.8	87.7	70.5	17.2	68.0	71.8	90	69	Z	0	SW	4		
30	.017	.949	72.2	88.7	87.8	69.8	18.0	69.6	70.3	92	64	Z	0	SW	6		
Means.	29.996	29.938	73.2	84.5	88.2	71.1	17.1	69.3	72.4	88	63	N	1.1	S by E	6.1	73.7	



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March 28, 2002

KINGSTON:—METEOROLOGICAL RESULTS.

Elevation above Sea-level 50 feet.

Nov. 1894.	Upper Cloud. (in tenths of the sky).		Lower Cloud. (in tenths of the sky.)		Rainfall.	Weather: Remarks, &c.
	7 a.m.	8 p.m.	7 a.m.	3 p.m.		
1	2 Cir. & Cir. s.	1 Cir. s.	...	2 Str.	Ins. 0.00	Fine.
2	...	3 Cir. s.	...	1 Cum.	0.00	Fine.
3	1 Cir. s.	...	3 Cum.	3 Cum. s.	0.00	Fine a.m. Rain in neighbourhood 6 p.m.
4	8 Cir. W	...	...	10 Nim. & Cum.	1.30	Fine a.m. Cloudy p.m. Rain 3 to 4.30 p.m.
5	2 Cir.	...	...	3 Cum.!	0.00	Fine.
6	3 Cir.	6 Cir. s.	...	4 Cum. s.	0.00	Fine a.m. Cloudy p.m.
7	10 Cir. & Cir. s.	1 Cir.	...	1 Cum.	0.00	Fine.
8	3 Cir. SW	2 Cir. c.	...	8 Str. & Str.	0.00	Fine a.m. Cloudy p.m.
9	10 Cir. & Cir. s.	4 Cir. & Cir. s.	...	6 Cum. & Cum.	0.00	Fair.
10	...	8 Cir. s.	...	2 Cum.	0.00	Fine a.m. Fair p.m.
11	1 Cir. SW	10 Cir. & Cir. s.	...	...	0.00	Fine a.m. Fair p.m.
12	1 Cir. c. & Cir. s.	1 Cir. s.	1 Cum.	9 Cum. s. & Str.	0.00	Fine.
13	5 Alt. s.	10 Cir. s.	5 Str.	...	0.28	Cloudy. Rain 9 to 9.30 a.m. Fair p.m.
14	2 Cir. s.	...	8 Str. & Cum. s.	3 Cum. s.	0.06	Cloudy. Rain at 9.30 a.m. and at noon.
15	5 Cir. & Cir. s.	1 Cir. s.	...	4 Cum. s.	0.00	Fine.
16	...	1 Cir. s.	...	1 Cum. s.	0.00	Fine.
17	1 Cir. s.	8 Cir. s. & Cir. c.	...	2 Str. & Cum. s.	0.00	Fine a.m. Fair p.m.
18	2 Cir. s.	...	1 Str. & Cum. s.	6 Str. c. & Str.	0.00	Fine a.m. Fair p.m.
19	2 Cir. s.	...	...	10 Str. Cum.	0.00	Fine a.m. Cloudy p.m.
20	8 Cir. & Cir. s.	...	...	10 Nim.	0.28	Fine a.m. Rain 2.15 to 3.30 p.m.
21	...	...	...	1 Cum.	0.00	Fine.
22	...	...	8 Str.	2 Cum.	0.00	Cloudy a.m. Fine p.m.
23	...	...	...	7 Str. & Str. c.	0.00	Fine a.m. Fair p.m.
24	...	...	...	7 Str. c.	0.00	Fine a.m. Fair p.m.
25	1 Cir.	...	...	2 Cum.	0.00	Fine.
26	...	...	10 Str. c.	6 Cir. s. & Str.	0.04	Cloudy. Showers about 2.30 p.m.
27	...	...	...	6 Cum. s. & Str.	0.12	Fine a.m. Rain 4.30 p.m.
28	...	2 Cir. s.	...	8 Str. c. & Str.	0.00	Fine a.m. Fair p.m.
29	...	2 Cir. s.	1 Cum.!	8 Str. c.	0.00	Fine a.m. Cloudy p.m.
30	...	4 Cir. s.	8 Str. & Cum. s.	2 Cum.	0.00	Cloudy a.m. Fine p.m.
Means.	25 o/o	21 o/o	15 o/o	45 o/o		Fine.
Total.					2.07	

RESULTS AT OTHER STATIONS.

STATION.	ELEVATION	MEANS FOR THE MONTH.										EXTREMES FOR THE MONTH.						Total Rainfall.
		Temperature.					Dewpoint.	Humidity.		Temperature.								
		7 a.m.	3 p.m.	Max.	Min.	Range.	7 a.m.	3 p.m.	7 a.m.	3 p.m.	Max.	Date.	Min.	Date.	Range			
	ft.	°	°	°	°	°	°	°	°	°	°	°	°	°	°	in.		
King's House	400	70.8	85.4	88.6	66.7	21.9	68.5	82.0	93	90	93	11 & 24	64	26	29	1.50		
Castleton Gardens	580	69.9	79.1	83.6	67.3	16.3	67.4	71.8	90	79	88	2 & 3	64	21	34	5.12		
Hope Gardens	600	72.6	82.7	88.1	64.3	23.8	69.4	74.1	87	74	90	1 & 16	63	29	27	2.60		
Stony Hill Reformatory	1,400	70.7	78.2	82.7	67.1	15.6	67.7	71.0	90	76	85	1*	65	5†	20	2.95		
Cinchona Plantation	4,907	60.0	64.6	68.3	56.7	11.6	56.2	60.1	86	83	73	18	54	5	19	8.39		

* and 5 other days.

† also 21 & 28.

THE HEALTH OF KINGSTON.

The following Table shows the number of deaths in Kingston during the month from a few groups of diseases, compared with the average number for the Month for the ten years 1881-1890:—

	NOVEMBER.	
	1894.	Average.
Infantile diseases not otherwise specified	16	17
Lung diseases	18	15
Fever and Malaria	10	10
Dysentery and Diarrhoea	4	4
Various	42	57
Total	90	103

Of the Various 1 was due to Diphtheria and 3 to Whooping Cough.

CINCHONA PLANTATION.

The following are means for the month in addition to those published above:—

Barometric pressure	7 a.m.	25.345
"	3 p.m.	25.333
Temperature—		
6 feet underground	7 a.m.	62.0
"	3 p.m.	62.0
Direction of the wind	...	Easterly
Velocity of the wind in miles per day		49.1

The maximum and minimum temperatures for the month at Newhaven Gap were respectively and the rainfall was 15.50 in.

BLUE MOUNTAIN PEAK:—ELEVATION 7,423 FEET.

DAY.	HOUR.	TEMPERATURE.		Temp.	Rain.	Remarks.	Observer's Initial.
		Max.	Min.				
1894.		°	°	°	in.		
January 31st	11.30 a.m.	68.9	41.3	56	9.45	Raining steadily	W. H.
February 28th	10.45 a.m.	65.9	42.3	52	16.30	Heavy clouds and light rain.	W. H.
April 1st	11.30 a.m.	66.9	40.3	56	9.75	Light rain, heavy clouds.	W. H.
April 30th	10.15 a.m.	68.9	...	58	9.10	Fine a.m., showery p.m.	W. H.
June 1st	10 a.m.	70.9	42.8	54	18.20	Wet and cold, high wind from	W. H.
June 30th	11 a.m.	70.9	45.3	68	6.60	Fine and clear. [N.E.]	W. H.
July 31st	11 a.m.	68.9	44.8	52	6.70	Raining—cold.	W. H.
August 31st	11.15 a.m.	69.9	44.8	62	1.72	Fine but misty.	W. H.
September 29th	10 a.m.	66.9	43.8	58	7.60	Fine a.m., showery p.m.	W. H.
October 31st	12.30 p.m.	61.9	45.8	56	18.35	Fine but misty.	W. H.
November 30th	2.30 p.m.	61.9	43.8	60	19.40	Steady rain, very cold.	W. H.

NOTE.—The Barometric pressure is the reading of the Barometer corrected for instrumental error, and reduced to 32°, that of Kingston being further reduced to Sea-level. The Thermometers are similarly exposed in Stevenson's screens at all the above Stations; their readings have all been corrected.

RAINFALL FOR NOVEMBER, 1894.

The first columns contain all the Rainfall Returns sent in for publication up to the date of this report; the second columns contain the corresponding average Rainfall according to the Tables published in January, 1892, as No. 124 (A) of the present series of Reports. In obtaining the mean Rainfall for the month from the numbers in the first columns, only those Stations are considered for which the average Rainfall has been given in the second columns; so that the results of these two columns are directly comparable. These results are more clearly shown in the Comparative Table at the end of these Rainfall Returns:—

NORTH-EASTERN DIVISION. NOVEMBER.

		1894. | Average.	
		In.	In.
Hordley	St. Thomas	9.30	9.02
Manchioneal	Portland	13.00	...
Bath P. W. D.	St. Thomas	8.97	...
Mt. Ephraim	...	...	...
Boston	Portland	...	12.86
Port Antonio P. W. D.	...	17.09	13.72
Fellowship P. W. D.	...	29.06	...
Serge Island	St. Thomas	...	...
Coley Estate	...	...	...
Cedar Valley P. W. D.	...	4.45	...
Cinchona Plantation	St. Andrew	8.39	10.11
Buff Bay P. W. D.	Portland	14.67	...
Cold Spring	St. Andrew	3.26	...
Hardware Gap	...	5.40	...
Rose Hill	...	...	...
Annotto Bay P. W. D.	St. Mary	8.49	...
Stony Hill Reformatory	St. Andrew	2.95	6.07
Belle Vue	...	2.60	...
Castleton Gardens	St. Mary	5.12	9.52
Lawrence's Tavern P. W. D.	St. Andrew	1.47	...
Albany, P. W. D.	St. Mary	10.90	...
Quebec	...	...	7.14

NORTH-EASTERN DIVISION, contd.

		NOVEMBER.	
		1894. | Average.	
		In.	In.
Richmond P. W. D.	...	6.07	...
Highgate P. W. D.	St. Mary	8.30	...
Gayle	...	8.70	10.56
Gayle P. W. D.	...	6.93	...
Rio Hoe	St. Ann	4.66	8.31
Unity Valley	...	2.88	6.89
Moneague P. W. D.	...	3.19	...
Claremont	...	5.78	...
Albion	...	5.06	8.73
Averham Park	...	7.53	7.91
Ballintoy	...	3.75	...
Means		7.17	9.08

NORTHERN DIVISION.

		NOVEMBER	
		1894. | Average.	
		In.	In.
Port Maria P. W. D.	St. Mary	16.82	8.46
Drax Hall	St. Ann	14.52	9.56
St. Ann's Bay P. W. D.	...	15.08	...
Seville	...	...	9.54
Richmond Estate	...	...	9.18
Llandovery	...	12.90	8.49
Southfield	...	...	...
Brown's Town P. W. D.	...	5.26	...
Home Castle	...	4.67	5.56
Richmond Pen	...	3.50	3.85
Mahogany Hall	Trelawny	3.27	5.15
Braco	...	4.68	5.76
Arcadia	...	4.62	6.06
Arcadia Great House	...	4.35	...
Harmony Hall	...	...	5.69
Lancaster	...	5.10	6.22
Vale Royal	...	4.40	6.68
Colchis Pen	...	4.04	3.51

NORTHERN DIVISION *contd.*

		NOVEMBER.	
		1894.	Average
		In.	In.
Hyde	Trelawny	5.58	6.18
Steelfield	...	3.31	5.60
Oxford	...	3.00	4.44
Cambridge	...	4.25	5.04
Dry Valley	...	...	...
Lottery	...	2.35	5.07
Falmouth	...	3.25	5.80
Falmouth P. W. D.	...	2.10	...
Fontabelle	...	3.05	...
Holland Pen	...	2.96	3.88
Pembroke	...	...	5.12
Golden Grove	...	2.75	5.17
Green Park	...	2.10	5.20
Tilston	...	2.35	5.01
Weston Favel	...	2.06	4.39
Orange Valley	...	2.38	4.23
Kent	...	2.75	4.18
Dundee	...	2.27	5.39
Phoenix	...	2.87	5.28
Gale's Valley	...	1.30	5.02
Greenwood	St. James	2.46	4.42
Canaan	...	2.62	...
Content	...	...	...
Bellfield	...	...	...
Gullsbro'	...	2.67	6.24
Tryall	...	...	...
Leogan	...	...	4.90
Cinnamon Hill	...	4.36	3.86
Rose Hall	...	4.81	3.98
Running Gut	...	4.20	4.19
Spring	...	4.05	...
Ironshore	...	3.70	3.59
Friendship	...	...	...
Providence	...	4.27	3.69
Montego Bay P. W. D.	...	1.69	...
Catherine Hall	...	2.15	3.70
Catherine Mount	...	...	3.84
Fairfield	...	...	3.73
Anchovy	...	...	3.55
Eden	...	...	3.61
Wiltshire	...	...	4.68
Round Hill	Hanover	0.90	3.34
Flint River	...	...	...
Tryall	...	...	3.31
Sandy Bay P. W. D.	...	1.54	...
Kew	...	...	3.79
Lucea P. W. D.	...	2.20	...
Thornhill, Lucea	...	...	...
Hanghton Court	...	...	3.07
Orange Cove	...	...	3.95
CENTRAL SUB-DIVISION—			
Headworks, R. C. C.	St. Catherine	0.47	4.77
Linstead P. W. D.	...	7.14	4.25
Point Hill, P.W.D.	...	3.14	...
Harker's Hall P. W. D.	...	3.04	...
Chapelton P. W. D.	Clarendon	2.58	4.42
Danks-Savoy	...	...	...
Cave Valley	St. Ann	2.72	5.14
	Means	4.16	5.11

WEST CENTRAL DIVISION.

		NOVEMBER.	
		1894.	Average
		In.	In.
Farm Plantation	Manchester	3.45	4.74
Brokenhurst Plantation	...	...	5.87
Christiana P. W. D.	...	4.94	...
Kendal P. W. D.	...	4.88	...
Mandeville P. W. D.	...	4.72	6.56
Marshall's Pen	...	...	...
Ulster Spring P. W. D.	Trelawny	2.91	...
Troy	...	3.02	...
Windsor Pen	...	4.17	4.95

WEST CENTRAL DIVISION, *contd.*

		NOVEMBER.	
		1894.	Average
		In.	In.
Balaclava P. W. D.	St. Elizabeth	4.44	...
Elim	...	14.36	...
Appleton	...	5.62	5.17
Magotty	...	4.15	...
Spring Vale	St. James	3.11	5.73
Maroon Town	...	...	4.81
Kempshot	...	4.64	5.10
Kepp	St. Elizabeth	8.20	5.71
Kew Park	Westmoreland	...	4.38
Mount Carey	St. James	2.03	...
Windsor Forest	Westmoreland	...	5.99
Chester Castle	Hanover	...	5.42
Darliston P. W. D.	Westmoreland	6.38	...
Whithorn, P. W. D.	...	6.2	...
Lethe Bridge	Hanover	2.40	...
Copse	...	...	5.75
Cacoon Castle	...	...	4.89
Golden Grove	...	...	5.20
Great Valley	...	...	...
Brownsville	...	3.15	...
George's Plain Estate	Westmoreland	5.51	...
Fontabelle	...	5.80	2.84
Morgans Bridge, P. W. D.	...	6.46	...
King's Valley	...	4.70	4.73
Abingdon	Hanover	4.85	4.81
	Means	4.93	6.03

SOUTHERN DIVISION.

		NOVEMBER.	
		1894.	Average
		In.	In.
Morant Point L. H., St. Thomas	...	4.01	5.22
Morant Bay P. W. D.	...	3.79	...
Lyssons	...	...	...
Easington P. W. D.	...	1.25	...
Abbey	...	2.93	3.70
Bull Bay P. W. D.	St. Andrew	0.90	...
Gordon Town	...	2.55	...
Hope Gardens	...	2.60	3.73
Hope Reservoirs	...	...	...
Cherry Garden	...	2.18	3.41
King's House	...	1.50	2.17
Cavaliers	...	...	...
Shortwood	...	...	...
Constant Spring	...	...	...
Monaltrie	...	2.18	3.54
Halfway Tree P.W.D.	...	1.16	...
Camperdown	...	0.93	...
Public Works Office, Kingston	...	2.07	2.56
Plumb Point L. H.	...	1.75	2.28
Port Royal	...	0.09	...
Ferry P. W. D.	St. Andrew	0.70	...
Spanish Town P.W.D.	St. Catherine	0.41	2.84
Windsor Park	...	3.57	3.10
Hog Hole Pen P. W. D.	...	0.62	3.55
Old Harbour P. W. D.	...	2.96	4.33
Somerset Hall	...	7.05	...
May Pen P. W. D.	Clarendon	0.19	...
Hermitage	...	2.32	...
Denbigh	...	...	4.82
Yarmouth P.W.D.	...	1.12	...
Victoria Town	Manchester	0.98	...
Stone's Hope	...	2.65	4.37
Newport P. W. D.	...	5.01	...
Alligator Pond P.W.D.	...	4.12	...
Potadam	St. Elizabeth	4.30	4.61
Long Hill	...	5.66	4.91
Pepper	...	2.95	5.39
Torrington P. W. D.	...	6.23	...
Bethlehem	...	6.31	...
Santa Cruz P. W. D.	...	4.90	...

SOUTHERN DIVISION, *contd.*

		NOVEMBER.	
		1894.	Average.
Black River P. W. D.	...	3.62	4.36
Font Hill	...	3.00	...
Grand Vale	Westmoreland	...	...
Peter's Ville	...	5.09	...
Mount Edgecombe	...	5.34	4.11
Sweet River	...	4.39	2.81
Windsor (Sav.-la-Mar)	...	6.27	3.65
Sav.-la-Mar P. W. D.	...	4.59	...
Retreat	...	7.09	...
Means		3.10	3.73

COMPARATIVE TABLE OF RAINFALL.

(Based upon the "Average" Stations only.)

		NOVEMBER.	
		1894.	Average.
		In.	In.
North Eastern Division		7.17	9.08
Northern	"	4.16	5.11
West Central	"	4.93	5.03
Southern	"	3.10	3.73
Means		4.84	5.74

The greatest fall, viz., 29.06in. was recorded at Fellowship P. W. D. and the smallest, viz., 0.09in. was recorded at Port Royal.

The rainfall in each Division was a little less than the average, the mean for the Island being a sixth less than the average.

At St. Ann's Bay 8.11 inches fell in "the 24 hours of Nov. 27th."

Below will be found a statement of the Rainfall recorded during this year compared with the average fall during the months in question.

It will be seen that the rainfall for the year to date is almost exactly the average.

		Rainfall recorded in 1894.	Average Rainfall.
January	...	2.19	4.04
February	...	2.56	2.47
March	...	3.48	3.04
April	...	5.21	4.60
May	...	17.01	9.52
June	...	3.90	8.38
July	...	5.88	5.36
August	...	4.05	7.91
September	...	7.00	7.66
October	...	12.80	9.53
November	...	4.84	5.74
Total	...	68.92	68.25

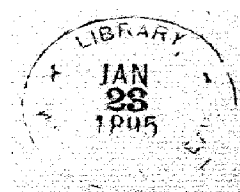
Mr. T. O. Garrett reports a "severe shock of earthquake at 5.50 p.m." on the 19th at Mandeville.
Corrigendum—The rainfall for Newhaven Gap for October was wrongly printed—it should have been 32.25 inches.

ROBT. JOHNSTONE.

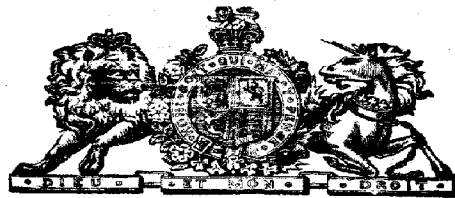
Kingston, 22nd December, 1894.

REGISTRATION OF THE SEA-LEVEL IN KINGSTON HARBOUR
Hourly readings from 6 a.m. to 6 p.m. both inclusive.

Novem- ber, 1894.	Highest Water in period 6 a.m. to 6 p.m.	Lowest Water in period 6 a.m. to 6 p.m.	Mean Sea-level.	Tide.	Phase of Moon.
	In.	In.	In.	In.	
1	21	16	19.09	5	First Q
2	21	16	18.82	5	
3	21	16	18.27	5	
4	Sunday				
5	20	17	18.00	3	
6	19	17	17.82	2	Full
7	19	18	18.20	1	
8	20	18	19.00	2	
9	19	19	19.00	0	
10	21	19	19.90	2	
11	Sunday				Last Q.
12	22	19	20.82	3	
13	25	19	22.73	6	
14	22	17	20.64	5	
15	24	16	21.64	8	
16	24	17	21.45	7	New.
17	24	16	20.55	8	
18	Sunday				
19	24	18	20.45	6	
20	22	19	20.18	3	
21	21	19	19.45	2	
22	23	21	22.00	2	
23	23	20	21.55	3	
24	23	20	21.82	3	
25	Sunday				
26	24	19	22.00	5	
27	23	18	21.64	5	
28	23	17	21.27	6	
29	22	16	20.10	6	
30	25	19	22.63	6	
Means	22.1	17.9	20.34	4.5	



No. 179.



JAMAICA

WEATHER REPORT

FOR THE MONTH OF

DECEMBER, 1894.

KINGSTON:—METEOROLOGICAL RESULTS.

Elevation above Sea-level 50 feet.

Dec. 1894.	Pressure.		Temperature.					Dewpoint.		Humidity.		WIND.					Total miles of wind.
												Direction from, and miles per hour.					
	7 a.m.	3 p.m.	7 a.m.	3 p.m.	Max.	Min.	Range.	7 a.m.	3 p.m.	7 a.m.	3 p.m.	7 a.m.	3 p.m.	Means for the day.			
	In.	In.	°	°	°	°	°	°	°								
1	29.998	29.926	71.4	82.2	88.3	69.4	18.9	67.4	70.2	87	67	Z	0	N	5	Var.	53
2	.962	.899	72.6	84.4	88.7	70.2	18.5	66.6	68.3	81	59	Z	0	S	2	Var.	73
3	.979	.910	70.5	79.2	87.7	68.8	18.9	65.6	74.1	84	85	Z	0	S	2	S	46
4	.974	.888	71.4	83.2	86.7	68.3	18.4	67.2	71.7	87	68	N	2	SE	11	SE	103
5	.963	.943	73.4	81.7	86.8	71.1	15.7	67.3	72.6	81	74	Z	0	SSE	9	SSE	118
6	.962	.931	71.4	68.2	73.2	67.0	6.2	69.6	67.9	94	99	Z	0	N	5	Var.	69
7	.934	.868	69.7	81.8	84.8	66.6	18.2	68.8	71.0	97	70	N	3	SW	4	Var.	83
8	.941	.859	74.3	81.2	81.6	73.0	8.6	70.0	73.5	86	78	N	1	Z	0	N	63
9	.893	.835	74.2	81.7	86.7	72.8	13.9	69.4	72.0	86	73	NNW	6	SE	3	SSE	83
10	.869	.854	70.4	82.2	86.2	69.7	16.5	66.8	72.5	83	73	Z	0	SE	3	SSE	81
11	.977	.927	71.6	77.7	86.3	71.2	15.1	67.3	74.4	88	90	N	1	Z	0	S	56
12	30.068	.971	71.2	82.9	90.3	70.4	19.9	65.4	72.1	82	70	N	3	NE	2	Var.	76
13	.018	.967	71.7	81.8	85.7	70.4	15.3	67.7	73.5	87	76	N	3	SE	3	S	58
14	29.953	.898	71.2	85.4	86.3	70.0	16.3	68.2	69.9	90	90	N	1	SE	5	SSE	51
15	.922	.846	70.4	76.9	86.3	70.1	16.2	66.9	73.3	89	89	N	2	SW	3	Var.	2
16	.897	.863	66.4	81.2	83.3	65.6	17.7	63.3	68.4	90	61	N	2	SE	3	S	60
17	.951	.894	66.6	82.8	86.1	64.7	21.4	61.6	69.1	87	61	N	1	NNW	8	NW	119
18	.898	.841	73.4	81.8	86.5	69.6	16.9	67.8	71.6	83	71	NNW	7	N	3	NNW	140
19	.913	.859	70.6	81.4	86.5	70.5	16.0	65.2	68.8	83	61	N	4	N	7	NNW	145
20	.988	.963	65.4	82.0	85.4	64.9	20.5	56.7	64.8	74	55	N	3	SW	4	Var.	100
21	30.066	30.049	69.9	80.6	81.0	66.6	14.4	64.8	67.1	84	65	N	4	SW	4	Var.	101
22	.087	.010	67.9	80.6	84.3	64.7	19.6	58.1	63.1	71	55	N	6	S	6	Var.	96
23	.057	29.988	65.6	81.4	83.3	66.4	16.9	59.9	62.9	79	54	N	2	SE	5	Var.	94
24	.064	30.005	65.0	82.1	84.2	64.8	19.4	58.4	64.9	79	56	N	2	SW	5	SW	69
25	.051	29.994	65.0	82.9	86.1	64.8	22.2	58.5	64.0	80	53	N	3	SW	6	W	68
26	.033	.964	63.9	81.9	85.8	63.7	22.1	59.3	75.3	85	31	N	3	SE	8	S	38
27	.066	.977	65.0	81.9	85.5	64.4	21.1	58.4	68.2	79	63	N	3	SE	6	SE	33
28	.055	30.010	64.6	82.2	84.2	64.0	20.2	59.2	64.2	83	56	N	1	S	5	Var.	91
29	.115	.075	64.2	75.4	77.8	63.5	14.3	58.5	64.7	82	89	N	13	NNW	14	NNW	243
30	.117	.064	64.9	81.9	84.3	61.3	20.0	61.2	65.4	83	58	N	2	SW	4	W	26
31	.082	.023	69.4	74.9	86.7	63.8	17.9	64.1	72.8	83	93	Z	0	N	3	N	76
Means.	29.994	29.938	69.1	80.8	85.1	67.7	17.4	64.2	69.2	85	63	N	2.5	SSE	4.9	S by E	83.3

KINGSTON:—METEOROLOGICAL RESULTS.

Elevation above Sea-level 50 feet.

Dec. 1894.	Upper Cloud. (in tenths of the sky).		Lower Cloud. (in tenths of the sky.)		Rainfall.	Weather: Remarks, &c.
	7 a.m.	8 p.m.	7 a.m.	3 p.m.		
1	...	...	8 Cum. & Str.	10 Str. & Cum. s. & Nim.	Ins. 0.00	Fair a.m. Cloudy p.m.
2	1 Cir. s.	1 Cir. s.	3 Cum.	7 Str. c.	0.00	Fine a.m. Cloudy p.m.
3	...	...	...	10 Str. & Cum. s.	0.08	Fine a.m. Rain at about 2 p.m. Cloudy p.m.
4	1 Cir. c.	1 Cir. s.	...	...	0.00	Fine.
5	...	8 Cir. s.	...	2 Cum. s.	0.00	Fine.
6	...	...	10 Nim.	10 Nim.	1.81	Rain from 3 a.m. and continued all day.
7	...	...	10 Cum. Nim. & Str.	8 Cum. Nim. & Str.	0.00	Cloudy.
8	1 Cir. s.	...	5 Str. c.	10 Str. & Cum. s.	0.00	Fair a.m. Cloudy p.m.
9	...	...	10 Str. & Cum. s.	5 Cum. & Str.	0.00	Cloudy a.m. Fair p.m.
10	...	...	...	5 Str. & Cum. s.	0.00	Fine.
11	...	...	1 Cum.	10 Cum. s. & Str.	0.02	Fine a.m. Rain 2.30 p.m.
12	...	...	...	10 Str. & Cum. s.	0.00	Fine a.m. Cloudy p.m.
13	...	...	...	7 Str. & Cum. s.	0.00	Fine a.m. Cloudy p.m.
14	...	...	2 Str. c.	2 Cum. Nim. & Str. & Cum. s.	0.00	Fine a.m. Cloudy p.m.
15	...	...	...	10 Str. & Cum. s.	0.49	Fine a.m. Rain 12.15 to 1 p.m. Cloudy p.m.
16	...	...	...	8 Str. & Cum. s.	0.00	Fine a.m. Rain to N. 4 to 6 p.m. Norther from 4 p.m. & continued.
17	...	...	2 Cum.	4 Str. & Cum.	0.00	Fine. Norther all day except between 7 and 10 a.m.
18	...	...	1 Cum.	1 Cum.	0.00	Fine. Norther continued all day.
19	...	...	7 Str. c. & Cum.	5 Str. & Str. c.	0.00	Cloudy a.m. Norther continued all day, fair p.m.
20	...	2 Cir. s.	...	4 Str. & Str. c.	0.00	Fine a.m. Norther ceased early morning. Fair p.m.
21	6 Alt. s.	...	4 Str. & Cum. s.	8 Str. & Cum. s.	0.00	Cloudy.
22	...	1 Cir. s.	...	...	0.00	Fine.
23	...	...	...	3 Cum.	0.00	Fine.
24	...	...	...	5 Cum. s.	0.00	Fine.
25	...	...	1 Cum.	1 Cum.	0.00	Fine.
26	...	...	...	...	0.00	Fine.
27	3 Cir.	6 Cir. s.	...	1 Cum.	0.00	Fine.
28	...	1 Cir. s.	...	2 Cum. s. & Str.	0.00	Fine.
29	1 Cir.	1 Cir. s.	3 Cum.	8 Cum. s. & Str.	0.00	Fine a.m. Norther commenced 1 a.m. & ceased 7 p.m. 17 miles being recorded in one hour about 1 p.m. Cloudy p.m.
30	1 Cir.	...	...	10 Str. & Str. c.	0.00	Fine a.m. Cloudy p.m.
31	...	...	7 Cum. & Str. c.	10 Nim.	0.08	Fair a.m. Cloudy p.m. Rain 2.30 to 4.30 p.m.
Means.	5 o/o	7 o/o	24 o/o	60 o/o		Fine—Northers 16th to 20th and on 29th.
Total.					2.43	

RESULTS AT OTHER STATIONS.

STATION.	ELEVATION	MEANS FOR THE MONTH.									EXTREMES FOR THE MONTH.							Total Rainfall.
		Temperature.					Dewpoint.		Humidity.		Temperature.							
		7 a.m.		8 p.m.	Max.	Min.	Range.	7 a.m.	8 p.m.	7 a.m.	8 p.m.	Max.	Date.	Min.	Date.	Range.		
		°	°	°	°	°	°	°	°	°	°	°	°	°	°	°		
King's House	400	68.5	82.0	85.1	63.6	21.5	65.1	74.9	88	70	89	2*	57	27	82	4.05		
Castleton Gardens	580	65.9	75.0	78.8	63.8	15.0	61.0	68.6	84	81	84	10 & 11	57	20†	27	10.80		
Hope Gardens	600	67.6	78.3	83.7	62.4	21.3	65.7	70.6	91	79	87	4 & 12	58	25	84	4.20		
Stony Hill Reformatory	1,400	68.6	74.0	78.3	63.9	14.4	63.6	66.0	90	76	83	5†	60	21§	28	8.69		
Obichona Plantation	4,907	65.7	61.1	64.6	52.7	11.8	52.0	58.1	86	89	70	9	48	24	22	11.65		

* also 4 & 23.

† also 7, 9 & 10.

‡ also 27 & 28.

§ also 23.

THE HEALTH OF KINGSTON.

The following Table shows the number of deaths in Kingston during the month from a few groups of diseases, compared with the average number for the Month for the ten years 1881-1890:—

	DECEMBER.	
	1894.	Average.
Infantile diseases not otherwise specified	17	16
Lung diseases	18	16
Fever and Malaria	10	10
Dysentery and Diarrhoea	5	6
Various	42	59
Total	92	107

CINCHONA PLANTATION.

The following are means for the month in addition to those published above:—

		in.
Barometric pressure	7 a.m.	25.808
" "	3 p.m.	25.287
Temperature—		
6 feet underground	7 a.m.	61.4
" "	3 p.m.	61.4
Direction of the wind	...	N.E.
Velocity of the wind in miles per day		63.0

The maximum and minimum temperatures for the month at Newhaven Gap were respectively and the rainfall was 33.07 in.

BLUE MOUNTAIN PEAK:—ELEVATION 7,423 FEET.

DAY.	HOUR.	TEMPERATURE		Temp.	Rain.	Remarks.	Observer's Initial.
		Max.	Min.				
1894.		°	°	°	in.		
January 31st	11.30 a.m.	68.9	41.3	56	9.45	Raining steadily	W. H.
February 28th	10.45 a.m.	65.9	42.3	52	16.30	Heavy clouds and light rain.	W. H.
April 1st	11.30 a.m.	66.9	40.3	56	9.75	Light rain, heavy clouds.	W. H.
April 30th	10.15 a.m.	68.9	...	58	9.10	Fine a.m., showery p.m.	W. H.
June 1st	10 a.m.	70.9	42.8	54	18.20	Wet and cold, high wind from	W. H.
June 30th	11 a.m.	70.9	45.3	68	6.60	Fine and clear. [N.E.]	W. H.
July 31st	11 a.m.	68.9	44.8	52	6.70	Raining—cold.	W. H.
August 31st	11.15 a.m.	69.9	44.8	62	1.72	Fine but misty.	W. H.
September 29th	10 a.m.	66.9	43.8	58	7.60	Fine a.m., showery p.m.	W. H.
October 31st	12.30 p.m.	61.9	45.8	56	18.35	Fine but misty.	W. H.
November 30th	2.30 p.m.	61.9	43.8	50	19.40	Steady rain, very cold.	W. H.
December 31st	11.30 a.m.	64.9	36.8	54	22.60	Raining steadily.	W. H.

NOTE—The Barometric pressure is the reading of the Barometer corrected for instrumental error, and reduced to 32°, that of Kingston being further reduced to Sea-level. The Thermometers are similarly exposed in Stevenson's screens at all the above Stations; their readings have all been corrected.

RAINFALL FOR DECEMBER, 1894.

The first column contains all the Rainfall Returns sent in for publication up to the date of this report; the second column contains the corresponding average Rainfall according to the Tables published in January, 1892, as No. 124 (A) of the present series of Reports. In obtaining the mean Rainfall for the month from the numbers in the first column, only those Stations are considered for which the average Rainfall has been given in the second column; so that the results of these two columns are directly comparable. These results are more clearly shown in the Comparative Table at the end of these Rainfall Returns:—

NORTH-EASTERN DIVISION. DECEMBER.

		1894. | Average.	
		In.	In.
Hordley	St. Thomas	8.86	9.85
Manchioneal	Portland	21.45	...
Bath P. W. D.	St. Thomas	9.00	...
Mt. Ephraim	...	...	...
Boston	Portland	...	11.03
Port Antonio P. W. D.	...	38.18	14.02
Fellowship P. W. D.	...	36.72	...
Serge Island	St. Thomas	...	...
Coley Estate	...	...	...
Cedar Valley P. W. D.	...	9.62	...
Cinchona Plantation	St. Andrew	11.68	12.15
Buff Bay P. W. D.	Portland	22.33	...
Cold Spring	St. Andrew	8.80	...
Hardware Gap	...	10.80	...
Rose Hill	...	...	...
Annotto Bay P. W. D.	St. Mary	17.72	...
Stony Hill Reformatory	St. Andrew	3.69	4.60
Balls Vue	...	...	...
Castleton Gardens	St. Mary	10.80	12.76
Lawrence's Tavern	P. W. D. St. Andrew	4.86	...
Albany, P. W. D.	St. Mary	12.65	...
Quebec	...	...	10.42

NORTH-EASTERN DIVISION, contd.

		DECEMBER.	
		1894. | Average.	
		In.	In.
Richmond P. W. D.	...	8.70	...
Highgate P. W. D.	St. Mary	11.14	...
Gayle	...	16.20	11.48
Gayle P. W. D.	...	11.33	...
Bio Hoe	St. Ann	7.31	10.62
Unity Valley	...	6.76	7.84
Moneague P. W. D.	...	6.88	...
Claremont	...	9.91	...
Albion	...	7.99	8.00
Averham Park	...	13.53	12.29
Ballintoy	...	6.02	...
Means		12.50	10.36

NORTHERN DIVISION.

		DECEMBER.	
		1894. | Average.	
		In.	In.
Port Maria P. W. D.	St. Mary	15.45	8.89
Drax Hall	St. Ann	13.09	9.26
St. Ann's Bay P. W. D.	...	11.84	...
Seville	...	11.65	9.15
Richmond Estate	...	...	10.31
Llandoverly	...	8.35	10.21
Southfield	...	...	...
Brown's Town P. W. D.	...	8.98	...
Home Castle	...	6.66	7.48
Richmond Pen	...	7.70	4.40
Manogany Hall	Trelawny	5.51	5.71
Braco	...	5.55	6.48
Arcadia	...	6.89	7.29
Arcadia Great House	...	5.35	...
Harmony Hall	...	...	6.56
Lancaster	...	5.74	7.06
Vale Royal	...	7.75	8.89
Colchis Pen	...	7.92	5.31

NORTHERN DIVISION contd.

		DECEMBER.	
		1894.	Average
		In.	In.
Hyde	Trelawny	6.67	6.89
Steelfield	...	4.13	6.84
Oxford	...	4.30	7.60
Cambridge	...	5.06	7.04
Dry Valley	...	...	...
Lottery	...	6.16	6.14
Falmouth	...	7.82	5.85
Falmouth P. W. D.	...	3.96	...
Fontabelle	...	4.25	...
Holland Pen	...	6.43	4.77
Pembroke	...	...	5.95
Golden Grove	...	6.60	5.00
Green Park	...	8.08	6.12
Tilston	...	6.75	5.15
Weston Favel	...	...	5.41
Orange Valley	...	7.08	5.97
Kent	...	5.55	5.28
Dundee	...	6.58	6.09
Phoenix	...	5.74	8.19
Gale's Valley	...	5.70	5.55
Greenwood	St. James	4.89	5.59
Canaan	...	3.22	...
Content	...	...	...
Bellfield	...	...	...
Guisbro'	...	4.97	4.69
Tryall	...	...	...
Leogan	...	...	7.49
Cinnamon Hill	...	4.50	5.51
Rose Hall	...	4.40	6.47
Running Gut	...	3.35	5.72
Spring	...	3.10	...
Ironshore	...	2.90	5.81
Friendship	...	...	...
Providence	...	2.60	6.72
Montego Bay P. W. D.	...	3.06	...
Catherine Hall	...	3.80	5.70
Catherine Mount	...	...	6.16
Fairfield	...	...	5.83
Anchovy	...	...	3.85
Eden	...	...	5.06
Wiltshire	...	...	4.37
Round Hill	Hanover	2.25	3.50
Flint River	...	...	...
Tryall	...	...	3.67
Sandy Bay P. W. D.	...	...	...
Kew	...	...	2.74
Lucea P. W. D.	...	...	...
Thornhill, Lucea	...	...	...
Baughton Court	...	...	4.78
Orange Cove	...	...	4.57
CENTRAL SUB-DIVISION—			
Headworks, R. C. C.	St. Catherine	2.13	2.29
Linstead P. W. D.	...	3.70	3.56
Point Hill, P.W.D.	...	3.66	...
Harker's Hall P. W. D.	...	3.28	...
Chapelton P. W. D.	Clarendon	4.98	2.40
Danks-Savoy	...	...	...
Cave Valley	St. Ann	2.79	2.71
Means		6.04	6.07

WEST CENTRAL DIVISION.

		DECEMBER.	
		1894.	Average.
		In.	In.
Farm Plantation.	Manchester	2.76	3.40
Brokenhurst Plantation	...	...	6.73
Christiana P. W. D.	...	3.88	...
Kendal P. W. D.	...	3.19	...
Mandeville P. W. D.	...	5.14	3.84
Marshall's Pen	...	5.17	3.51
Ulster Spring P. W. D.	Trelawny	7.21	...
Troy	...	...	...
Windsor Pen	...	5.25	7.01

WEST CENTRAL DIVISION, contd

		DECEMBER.	
		1894.	Average
		In.	In.
Balaclava P. W. D.	St. Elizabeth	...	...
Elim	...	...	...
Appleton	...	3.62	3.44
Magotty	...	3.85	...
Spring Vale	St. James	6.03	6.60
Maroon Town	...	...	4.51
Kempahot	...	5.96	4.48
Kepp	St. Elizabeth	...	3.14
Kew Park	Westmoreland	2.90	2.21
Mount Carey	St. James	2.80	...
Windsor Forest	Westmoreland	...	4.37
Chester Castle	Hanover	...	2.82
Darliston P. W. D.	Westmoreland	4.61	...
Whithorn, P. W. D.	...	2.18	...
Lethe Bridge	Hanover	...	...
Copse	...	...	3.83
Cacoon Castle	...	4.99	6.09
Golden Grove	...	...	4.10
Great Valley	...	4.97	...
Brownsville	...	5.09	...
George's Plain Estate	Westmoreland	2.66	...
Fontabelle	...	2.82	3.05
Morgans Bridge, P. W. D.	...	3.22	...
King's Valley	...	3.00	4.49
Abingdon	Hanover	1.50	4.86
Means		4.08	4.42

SOUTHERN DIVISION.

		DECEMBER.	
		1894.	Average.
		In.	In.
Morant Point L. H., St. Thomas	...	11.85	6.65
Morant Bay P. W. D.	...	6.04	...
Lyssons	...	...	...
Easington P. W. D.	...	5.30	...
Abbey	...	7.00	3.34
Bull Bay P. W. D.	St. Andrew	0.50	...
Gordon Town	...	7.06	...
Hope Gardens	...	4.20	2.55
Hope Reservoirs	...	...	...
Cherry Garden	...	...	2.77
King's House	...	4.05	1.53
Cavaliers	...	...	...
Shortwood	...	...	...
Constant Spring	...	...	...
Monaltrie	...	2.93	2.17
Halfway-Tree P.W.D.	...	2.18	...
Camperdown	...	3.58	...
Public Works Office, Kingston	...	2.48	1.91
Plumb Point L. H.	...	3.11	1.62
Port Royal	...	1.62	...
Ferry P. W. D.	St. Andrew	3.65	...
Spanish Town P.W.D.	St. Catherine	2.32	2.27
Windsor Park	...	...	2.42
Hog Hole Pen P. W. D.	...	1.69	2.37
Old Harbour P. W. D.	...	2.85	2.66
Somerset Hall	...	2.58	...
May Pen P. W. D.	Clarendon	1.90	...
Hermitage	...	3.75	...
Denbigh	...	2.50	2.29
Yarmouth P.W.D.	...	3.35	...
Victoria Town	Manchester	...	...
Stone's Hope	...	3.23	2.52
Newport P. W. D.	...	3.26	...
Alligator Pond P.W.D.	...	3.17	...
Potsdam	St. Elizabeth	...	3.05
Long Hill	...	4.29	3.07
Pepper	...	4.25	2.48
Torrington P. W. D.	...	3.46	...
Bethlehem	...	0.69	...
Santa Cruz P. W. D.	...	3.65	...

Let us now consider those 50 tides which are clearly marked :—

Tides, 1894.

Days from N. or F.	Date.	High Water.		Low Water.		Average.	
		Hour.	In.	Hour.	In.	High.	Low.
N. or F.	January 6	11 a.m.	25	21.4	16.0
	March 21	11 a.m.	19	...	...
	April 5	10 a.m.	18	...	13		
	May 19	...	20	3 p.m.	16		
	November 13	12½ p.m.	25	...	19		
1	January 22	11 a.m.	30	26.0	
	February 20	11 a.m.	27	...	...
	March 8	Noon	21	...	...
2	January 23	Noon	30	27.5	
	February 21	11 a.m.	25	...	...
3	January 9	Noon	28	24.9	
	February 8	11 a.m.	29	...	...
	February 22	Noon	23	...	...
	October 2	Noon	23	...	15		
	October 17	2 p.m.	26	...	...
	November 30	2½ p.m.	25	...	...
	December 29	3 p.m.	20	...	...
4	January 10	Noon	27	24.0	18.0
	January 25	1 p.m.	24	...	...
	February 9	Noon	23	...	18		
	June 9	...	23	1 p.m.	19		
	October 18	2 p.m.	25	...	19		
	November 17	4 p.m.	24	...	16		
	December 1	3 p.m.	22	...	...
5	February 10	Noon	23		
6	January 12	1 p.m.	26	24.0	
	June 11	...	22	1 p.m.	19		
7	June 12	...	22	2 p.m.	19		
8		
9	May 23	...	22	2 p.m.	18		
10	May 29	...	21	2 p.m.	18	18.5	
	June 28	...	...	Noon	19
11	February 1	7 a.m.	23	25.0	17.8
	May 30	...	22	2 p.m.	18		
	June 16	...	...	2 p.m.	17
	June 29	...	...	1 p.m.	16
	July 28	...	...	2 p.m.	18
12	January 4	9 a.m.	25	25.0	17.5
	February 17	9 a.m.	29	...	20		
	May 17	...	21	2 p.m.	18		
	May 31	...	...	2 p.m.	15
	June 30	...	...	2 p.m.	17
13	January 5	10 a.m.	26	...	17	21.5	15.8
	April 3	9 a.m.	20	4 p.m.	14		
	May 18	...	21	3 p.m.	18		
	June 1	...	19	3 p.m.	14		
14	January 20	10 a.m.	34	23.0	14.7
	April 4	10 a.m.	19	3 p.m.	13		
	May 3	...	21	3 p.m.	17		
	June 2	...	18	3 p.m.	14		
15	March 6	11 a.m.	24	...	19		

Let us now collect these tides into three groups, so that the first includes the days 1, 2, 3, 4, 5; so that the second includes the days 6, 7, 8, 9, 10; and so that the third includes the days 11, 12, 13, 14, N. or F.

Then we have:—

	High water.	Low water.	Range.
	in.	in.	in.
First group	25.6	18.0	7.6
Second group	22.2	18.5	3.7
Third group	23.2	16.4	6.8

And by further combining the first and third groups we have a range of about 7.2 for the *Spring* tides which

is about double the range for the *Neap* tides, namely 3.7. This is as it ought to be; and we now have to consider the times of High water.

The time of High water on any day must be compared with the time of the Moon's preceding upper or lower transit across the Meridian; the latter may be taken from the Nautical Almanac by adding 10 minutes for the difference of longitude between Kingston and Greenwich. The difference is called the Lunitidal interval; it varies throughout the semi-mensual period according to approximately known rules; and the difference on the day of New and Full Moon is called the Establishment, because when that is known for any place the time of the ordinary tides for any other day at that place can easily be found.

Days from N. or F.	High water.		Moon's transit.		Lunitidal interval.
	Day.	Hour.	Day.	Hour.	
N. or F.		hr.		hr. min.	hr. min.
...	January 6	11 a.m.	January 5	11 22 p.m.	11 38
...	March 21	11 a.m.	March 20	11 52 p.m.	11 8
...	April 5	10 a.m.	April 4	11 20 p.m.	10 40
...	November 13	12.30 p.m.	November 12	11 32 p.m.	12 58
1	January 22	11 a.m.	January 22	12 50 a.m.	10 10
...	February 20	11 a.m.	February 20	12 24 a.m.	10 36
...	March 8	noon	March 8	12 42 a.m.	11 18
2	January 23	noon	January 23	1 48 a.m.	10 12
...	February 21	11 a.m.	February 21	1 15 a.m.	9 45
3	January 9	noon	January 9	1 51 a.m.	10 9
...	February 8	11 a.m.	February 8	2 2 a.m.	8 58
...	February 22	noon	February 22	2 2 a.m.	9 58
...	October 2	noon	October 2	2 12 a.m.	9 48
...	October 17	2 p.m.	October 17	1 42 a.m.	12 18
...	November 30	2.30 p.m.	November 30	2 14 a.m.	11 16
...	December 29	3 p.m.	December 29	1 49 a.m.	13 11
4	January 10	noon	January 10	2 37 a.m.	9 23
...	January 25	1 p.m.	January 25	3 28 a.m.	9 32
...	February 9	noon	February 9	2 45 a.m.	9 15
...	October 18	2 p.m.	October 18	2 38 a.m.	11 22
...	November 17	4 p.m.	November 17	3 36 a.m.	12 24
...	December 1	3 p.m.	December 1	3 6 a.m.	11 54
5	February 10	noon	February 10	3 28 a.m.	8 32
6	January 12	1 p.m.	January 12	4 3 a.m.	8 57
11	February 1	7 a.m.	March 31	8 25 p.m.	10 35
12	January 4	9 a.m.	January 3	9 40 p.m.	11 20
...	February 17	9 a.m.	February 16	9 27 p.m.	11 33
13	January 5	10 a.m.	January 4	10 30 p.m.	11 30
...	April 3	9 a.m.	April 2	9 52 p.m.	11 8
14	January 20	10 a.m.	January 19	10 39 p.m.	11 21
15	March 6	11 a.m.	March 5	11 15 p.m.	11 45

Hitherto it has been sufficiently accurate to group the observations according to the days from N. or F.; but we must now group the observations according to the hour and half hour of the Moon's transit, and it will be seen that the group for N. or F. coincides with the transit of 11hrs. 30min. and that the group for one day coincides with the transit of 12 hrs. 30 min.; so that

we have no groups corresponding accurately with N. or F. or with a transit of 12 hrs. 0 min. and we must therefore obtain the Establishment by means of Corrections to be applied to the Lunitidal intervals.

The following corrections have been obtained from *The Admiralty Manual of Scientific Enquiry* (Third Edition, p. 81).

Days from N. or F.	Moon's Transit.		Lunitidal interval.		Correction for Semi- mensual inequality.	Establishment.		Number of Observations.
	hr.	min.	hr.	min.		hr.	min.	
1	12	30	10	41	+	7	10	48
2	1	30	9	58	+	23	10	21
3	2	0	10	48	+	31	11	19
4	3	0	10	38	+	47	11	26
5	3	30	8	32	+	55	9	27
6	4	0	8	57	+	62	9	59
11	8	30	10	35	+	16	10	51
12	9	30	11	27	—	6	11	21
13	10	0	11	19	—	13	11	6
14	10	30	11	21	—	12	11	9
N. or F.	11	30	11	38	—	5	11	33

In order to obtain the most probable value of the Establishment we must weight the results in the last column but one by the Number of Observations; we thus have as the Establishment for Kingston Harbour —11 hours 6 min. This compares very favourably with the Establishment adopted for Port Royal in the *Handbook of Jamaica*, namely 11 hours 0 min., as of course the tide must take a few minutes to flow from Port Royal to Kingston.

We shall here pause for a time as it is a matter for consideration whether these rough observations should be compared with theory so as to deduce the laws for one and two tides a day or whether it will be better to wait for more accurate observations; for the immediate future the scale will be read to one or two-tenths of an inch, the number of observations will be reduced from 13 to 12 a day, and the blanks will be properly treated. But I would strongly recommend some self-registering apparatus which would give us a continual record day and night, Sundays and holidays. Mr. Brennan of the Public Works Department has put up three or four different sets of self-registering instruments in the Weather Office, and they have all worked admirably. If the services of Mr. Brennan could be secured for this purpose I don't suppose that the cost would be more than £5 or £6 for the driving clock and the frame-work to carry the moving board to which the properly ruled sheets of paper would be daily attached. I believe that the present rough and very imperfect system costs £10 a year, and I strongly recommend the change.

Referring to the Extracts from the Register, the water was on January 19th apparently affected by some seismic motion; there was no earthquake, but in

former Weather Reports allusion is made to the heaving of the surface of the earth about the time of an earthquake shock, which affects the wind, the clouds, and gives rise to oscillations of the barometer.

Referring to the continuous Wind-record we find the following results for the afternoon of Jan. 19th, 1894:—

	Miles per hour.
1 p.m.	6.0
2 "	5.8
3 "	2.7
4 "	2.0
5 "	1.1
6 "	2.9
7 "	4.3
8 "	4.0

from which it appears that the wind dropped suddenly about the time of the wave at a time when the wind is generally fresh, and that it rose again at a time when the wind is generally very light. It was S until 6 p.m. when it veered to N. The barometer also shows some sympathetic movement as in the case of the earthquake June 4th, 1893; but the movement is so small that we shall not further consider it.

On September 23rd a large Cyclone passed over Haiti and Cuba and therefore near Jamaica; but as it was Sunday no record of the height of the water was taken on that day, and we must wait for another opportunity to decide what effect cyclones have on the sea-level.

MAXWELL HALL.

Montego Bay, Jan. 23rd, 1895.

SOUTHERN DIVISION, *contd.*

		DECEMBER.	
		1894	Average.
Black River P. W. D.	...	1.90	...
Font Hill	...	...	...
Grand Vale	Westmoreland	...	...
Peter's Ville	...	3.19	...
Mount Edgewcombe	...	2.14	...
Sweet River	...	2.02	2.87
Windsor (Sav.-la-Mar)	...	...	2.46
Sav.-la-Mar P. W. D.	...	1.67	...
Retreat	...	...	...
Means		3.88	2.69

COMPARATIVE TABLE OF RAINFALL.

(Based upon the "Average" Stations only.)

		DECEMBER.	
		1894.	Average.
		In.	In.
North Eastern Division		12.60	10.36
Northern	"	6.04	6.07
West Central	"	4.08	4.42
Southern	"	3.88	2.69
Means		6.62	5.88

The greatest fall, viz., 38.13in. was recorded at Port Antonio P. W. D. and the smallest, viz., 0.50in. was recorded at Bull Bay P. W. D.

The rainfall in the North Eastern Division was two inches, or about a fifth, more than the average; in the Northern Division it was almost exactly the average; in the West Central Division it was a seventh more than the average; and in the Southern Division the fall was upwards of an inch in excess of or about half as much again as the average. The result for the Island shows that the fall in December was three quarters of an inch, or an eighth more, than the average.

The following notes have come to hand from the gentlemen stated:—

Mr. T. C. Garrett, Supdt. Pub. Works, Mandeville.—On the 14th 2.43 inches fell in one hour 20 minutes between 4 and 6 p.m. preceded by sharp gusty westwardly wind.

Rev. J. F. Gartshore, Brownsville, Lucea P.O.—Temperature on the 29th was 62° in morning, fell to 60° and remained so all day; cold North wind blowing.

Mr. Hugh A. Vickers, Fontabelle Estate.—Strong North wind during last week of month, accompanied by showers during the night.

Mr. Chas. B. Vickers, Mount Edgewcombe.—Our rainfall here in 1894, amounts to 93.84 inches, being 11.89 inches in excess of the next highest from 1879, viz., in 1893, when there was a total of 81.95 inches the average of 14 years (1880-1893) being 63.48 inches. I think we should have to go back to 1870 to find (perhaps) an equal rainfall to that of last year at this place.

Dr. T. F. Mannors The Abbey.—A good deal of thunder. Thermometer as low as 55° later part of month.

Mr. Joseph Shore, Cinnamon Hill, Little River P.O.—On Friday, 28th ult., at about 5.30 p.m. I noticed a Waterspout out at sea directly abeam of this place. It was exactly like a coconut tree in appearance, and evidently 5 times higher, and the sea was churned up for a considerable distance round the base of it. The margin shews a rough idea of it.* It struck me as being much higher than any Waterspout I have seen before—the cloud to which it was connected not being any lower than an ordinary rain cloud. I watched its travelling Eastward at a very rapid rate—a squall following its track; and it collapsed fully 15 minutes after I first observed it, after having reached a position exactly at right angles to where it appeared. A very

high wind started to blow a few hours afterwards, and this became a regular gale during the night.

Below will be found a statement of the Rainfall recorded during this year compared with the average fall during the months in question.

	Rainfall recorded in 1894.	Average Rainfall.
January	2.19	4.04
February	2.56	2.47
March	3.48	3.04
April	5.21	4.60
May	17.01	9.52
June	3.90	8.38
July	5.88	5.36
August	4.05	7.91
September	7.00	7.66
October	12.80	9.53
November	4.84	5.74
December	6.62	5.88
Total	75.54	74.13

The Rainfall for the Island for the year was thus about an inch and a half or nearly two per cent. over the average, according to the above approximate statement. The complete detailed report of the Rainfall for 1894, to appear subsequently, will show the exact result. REGISTRATION OF THE SEA-LEVEL IN KINGSTON HARBOUR. Hourly readings from 6 a.m. to 6 p.m. both inclusive.

Decem-ber, 1894.	Highest Water in period 6 a.m. to 6 p.m.	Lowest Water in period 6 a.m. to 6 p.m.	Mean Sea-level.	Tide.	Phase of Moon.
	In.	In.	In.	In.	
1	21	17	19.09	4	First Q.
2	Sunday				
3	20	17	18.36	3	
4	22	16	18.09	5	
5	22	20	20.54	2	
6	20	19	19.27	1	Full
7	22	21	21.45	1	
8	21	19	20.09	2	
9	Sunday				
10	25	21	23.03	4	
11	24	19	22.81	5	Last Q.
12	24	16	21.81	8	
13	22	14	19.54	8	
14	23	14	20.54	9	
15	25	15	21.22	10	
16	Sunday				New.
17	22	18	20.25	4	
18	20	18	19.20	2	
19	21	19	20.30	2	
20	21	19	20.36	2	
21	21	18	19.27	3	New.
22	19	16	17.27	3	
23	Sunday				
24	22	18	19.70	4	
25	Holiday				
26	Holiday				New.
27	20	15	18.45	5	
28	20	14	18.10	6	
29	20	13	17.55	7	
30	Sunday				
31	19	16	17.17	3	
Means	21.5	17.2	19.71	4.4	

*Not Printed.

KINGSTON JAMAICA.—Mean Results for the Year 1894.—Elevation, 50 Feet.

MONTH.	WIND.																			
	PRESSURE.		TEMPERATURE.				DEWPOINT.		HUMIDITY.		Direction from and Miles per Hour.				Average Velocity per day.					
7 a.m.	3 p.m.	in.	7 a.m.	3 p.m.	°	°	°	°	7 a.m.	3 p.m.	7 a.m.	3 p.m.	Means for the day.	Total of miles of Wind.						
January	30.053	29.990	68.6	82.0	84.8	66.7	18.1	63.4	67.7	°	°	°	62	84	62	5.9	SSE	2.9	2183	70.4
February	30.107	30.046	67.7	80.7	84.0	66.2	17.8	62.9	68.3	°	°	°	66	85	66	8.6	SE	4.0	2681	95.7
March	30.079	30.022	69.2	81.0	83.9	66.6	17.3	63.2	69.8	°	°	°	69	81	69	7.9	SE by S	4.3	3195	103.1
April	30.030	29.971	72.8	82.1	85.7	69.8	15.9	66.9	69.2	°	°	°	65	82	65	6.7	SSE	3.6	2574	85.8
May	29.945	29.902	76.7	82.3	85.3	72.4	12.9	70.0	72.5	°	°	°	72	80	72	6.8	SE by S	4.2	3153	101.7
June	30.023	29.972	78.6	85.2	88.3	73.1	15.2	70.5	73.0	°	°	°	67	76	67	9.7	SE	5.1	3703	123.4
July	30.049	30.008	79.5	85.4	89.2	72.1	17.1	69.4	72.7	°	°	°	66	72	66	8.2	SE	4.3	3205	103.4
August	30.021	29.972	77.9	86.5	89.8	72.9	16.9	69.1	71.8	°	°	°	62	74	62	8.9	SE	3.9	2865	92.4
September	29.960	29.910	77.0	86.0	90.1	73.8	16.3	70.3	73.4	°	°	°	66	80	66	6.9	SSE	3.8	2732	91.1
October	29.926	29.875	74.6	83.2	86.7	71.5	15.2	70.8	73.0	°	°	°	72	88	72	6.1	S by E	3.4	2497	80.5
November	29.996	29.928	73.2	84.5	88.2	71.1	17.1	69.3	72.4	°	°	°	68	86	68	6.1	SE by S	3.1	2211	73.7
December	29.994	29.938	69.1	80.8	85.1	67.7	17.4	64.2	69.2	°	°	°	68	85	68	4.9	S by E	3.6	2753	88.8
Means	30.015	29.961	73.7	83.3	86.7	70.3	16.4	67.5	71.1	°	°	°	67	81	67	7.2	SE by S	3.8	2813	92.5

KINGSTON, JAMAICA—Year 1894.

Month.	Upper Cloud Percent- age.		Lower Cloud Percent- age.		Extreme for the Month.					Total Rainfall.	Weather Remarks, &c.
	Temperature.										
	7 a.m.	3 p.m.	7 p.m.	3 p.m.	Max.	Date.	Min.	Date.	Range.		
January	7	6	19	51	89.0	30	64.3	19	24.7	in.	
February	0	1	14	55	89.0	7	62.8	5	26.2	0.19	Fine.
March	1	1	21	60	87.7	6	61.2	9	26.5	0.67	Fine.
April	13	6	15	72	89.5	29	66.6	20	22.9	0.74	Fine.
May	18	15	38	70	89.3	26	69.4	3&5	19.9	0.61	Fair.
June	19	24	15	39	92.9	22	71.1	8	21.8	10.65	Heavy Seasons.
July	22	23	5	42	92.9	17	66.3	25	26.0	0.70	Fair.
August	33	33	23	39	92.5	19	70.2	12	22.3	1.21	Fair.
September	21	15	12	58	92.9	21	70.6	19	22.3	1.31	Fair.
October	17	22	29	45	90.3	31	67.0	25	23.3	1.55	Fair, with Cyclone to North on 23rd.
November	25	21	15	45	90.3	19	68.7	5	21.6	12.78	"Season."
December	5	7	24	60	90.3	12	63.2	25	27.1	2.07	Fine.
Means Total	15	14	19	53	90.5		66.8		23.7	2.43	Fine—Northers 16th to 20th and on the 29th.
										34.91	

Kingston, 17th January, 1895

ROBT. JOHNSTONE.

THE REGISTRATION OF THE SEA-LEVEL IN KINGSTON HARBOUR FOR THE YEAR 1894.

A very rough system of registration was commenced by Mr. Charlton Thompson, the Harbour-Master for Kingston, in Dec., 1893, but we shall here only consider the register for the complete year, 1894.

The Tide-gauge is fixed to a pile in the boat-house at the Custom-house wharf, and it consists of a float carrying a long vertical rod or index which moves with the change of sea-level up and down a fixed vertical scale; the float is placed inside a vertical box-shaped tube in order to cut off the incessant motion of the waves; and the scale is divided into inches, the zero of the scale being quite arbitrary.

The Tide-gauge is read by one of the boatmen daily at almost every hour between 6 a.m. and 6 p.m. inclusive; but as the boatmen are almost invariably absent on harbour duty at 8 and 9 a.m., and as no reading is taken on Sunday, the whole series of readings is very imperfect, and the results deduced must be accepted with caution. But still as the work has been conscientiously done we can obtain some general results of great interest and value and we shall begin with the observations which have been published month by month in the Meteorological Reports

1894.	Daily Averages of.			
	High Water.	Low Water.	Range.	Sea-level.
	in.	in.	in.	in.
Jan.	27.0	19.4	7.6	23.0
Feb.	24.9	17.3	7.6	21.0
Mar.	21.3	14.5	6.8	17.6
April	18.4	13.3	5.1	15.3
May	21.0	16.6	4.4	18.1
June	22.2	17.9	4.3	19.3
July	23.3	19.8	3.5	21.0

1894.	Daily Averages of.			
	High Water.	Low Water.	Range.	Sea-level.
	in.	in.	in.	in.
Aug.	20.2	19.1	3.1	20.4
Sept.	20.2	17.1	3.1	18.4
Oct.	21.4	17.0	4.4	19.5
Nov.	22.1	17.9	4.2	20.3
Dec.	21.5	17.2	4.3	19.7
Means	22.1	17.2	4.9	19.5

From this table we see that the mean sea-level in Kingston Harbour is about nineteen and a half inches above the zero of the scale of the Tide-gauge, and that the average daily range or difference between high and low water is only 5 inches. The water was unusually high in January and February, and unusually low in April; but there seem to be no systematic changes in the above table except indeed as regards the range. The range decreases gradually from January and February to August and September, when it somewhat increases again. I am unable to account for this annual variation of the range, and can only suggest that the observations should be continued, were it only to arrive at the explanation.

Before leaving this table it may be mentioned that in 1894 the water was highest on January 20th when it stood 14½ inches above the mean sea-level, and that it was lowest on April 9th and 10th when it was 9½ inches below the mean sea-level. This max. and min. give an extreme difference of 2ft. which is rather large considering that the average range is only 5 inches.

The question raised by the annual variation of range led me to consider all the observations of range in connection with the relative positions of Sun and Moon: when the Sun and Moon are on the same line through the Earth or nearly so, their combined effect gives us *Spring* tides; when the Moon is at right angles to the line joining the Sun and Earth, their conflicting effect gives us *Neap* tides; and as the range is large during *Spring* tides and small during *Neap* tides, we would expect that the range would be large at New or Full Moon, and that it would gradually decrease with the days after N. or F. until the quarter at the 7th day when the range would be small and then gradually increase again.

Days from N. or F.	Range.
	in.
N. or F.	5.0
1	4.7
2	5.2
3	5.7
4	4.6
5	4.7
6	4.4
7	4.6
8	4.9
9	5.2
10	4.6
11	4.8
12	4.8
13	4.4
14	4.5

In this table we find no such variation as would be produced by Solar and Lunar tides; and consequently we are driven to the conclusion that the water in Kingston Harbour and probably round the coasts of Jamaica is chiefly affected by anomalous causes of which we have no knowledge at present.

Under these circumstances the best thing to be done is to classify the days of observation into the following groups:

Month.	Tides clearly marked.	Tides not clearly marked.	One Tide in the 24 hours.	Water nearly steady 6 a.m. to 6 p.m.	Not observed.
	Days.	Days.	Days.	Days.	Days.
January	10	7	7	0	7
February	8	11	3	0	6
March	3	14	6	0	8
April	3	8	13	1	5
May	8	8	6	2	7
June	9	9	7	1	4
July	1	12	7	6	5
August	0	12	3	10	6
September	0	6	8	10	6
October	3	17	3	4	4
November	3	11	4	7	5
December	2	12	2	7	8
Totals	50	127	69	48	71

We now see that the annual variation of the range is intimately connected with the number of days on which the water was nearly level. On two days in 1894, namely, August 9th and November 9th the level of water did not move at all between 6 a.m. and 6 p.m. and of course the more such days in the month the smaller the range for the month. This is no explanation of the variation; but it directs us how to proceed; we must find, if possible, the causes which combine to maintain the water at a constant height.

We here give a few extracts from the Register to show what we mean by "Tides clearly marked" and so on: and it will be seen that the tides are not nearly as clearly marked as they should be, and that we may often be at least an hour wrong in deducing the time of high and low water; and as there are only 50 such tides in the whole year no doubt they are easily overpowered by the anomalous causes referred to above.

With regard to the days on which there is only one tide in the 24 hours, they chiefly occur between the 2nd and 9th day after N. or F. when the moon's declination is far north or south of the celestial equator. We cannot study this inequality due to the moon's declination until the broad features of the Tides have been established.

EXTRACTS FROM THE REGISTER.

1894.	6 a.m.	7 a.m.	8 a.m.	9 a.m.	10 a.m.	11 a.m.	Noon.	1 p.m.	2 p.m.	3 p.m.	4 p.m.	5 p.m.	6 p.m.	Mean sea level.	Range.	Days fr. N. or F.	Notes.
Jan. 9	in. 20	in. 22	in. .	in. .	in. 27	in. 27	in. 28	in. 27	in. 26	in. 24	in. 23	in. 22	in. 21	in. 24.3	in. 8	3	Tides clearly marked high water at noon.
May 19	20	20	.	.	19	18	17	17	16	16	16	17	18	17.6	4	F.	Tides clearly marked low water at 3 p.m.
Jan. 15	28	27	.	24	24	24	23	23	23	23	23	22	22	23.8	6	9	One tide in the 24 hrs. falling 6 a.m. to 6 p.m.
Sep. 4	18	18	.	.	19	19	20	20	21	21	22	22	22	20.2	4	5	One tide in the 24 hrs. rising 6 a.m. to 6 p.m.
June 13	21	21	.	.	20	20	19	19	19	19	19	20	21	19.8	2	10	Water nearly steady 6 a.m. to 6 p.m.
Aug. 9	22	22	.	.	22	22	22	22	22	22	.	.	.	22.0	0	8	Water steady (?) 6 a.m. to 6 p.m.
Nov. 9	19	19	.	.	19	19	.	19	19	19	19	19	19	19.0	0	11	Water steady (?) 6 a.m. to 6 p.m.
Jan. 19	28	30	30	.	30	28	26	24	22	20	20	27	25	26.6	10	13	Seismic change of level between 3 and 4 p.m.
Sep. 21	15	15	.	.	15	16	16	17	18	19	20	21	21	17.5	6	7	
Sep. 22	16	16	.	.	15	15	16	16	18	19	21	22	23	17.9	8	8	A large cyclone passed near Jamaica on Sep. 23rd. (See Pilot Chart.) There seems to have been no premonitory change of level.
Sep. 23	.	.	.	.	.	Sunday	.	.	.	.	.	.	.	.	.	.
Sep. 24	17	16	.	.	15	14	14	14	14	14	16	18	20	15.6	6	10	

